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EXAMINER	
CHANG, V	
ART UNIT	**PAPER NUMBER**
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DATE MAILED: 03/14/95

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

☒ This application has been examined ☒ Responsive to communication filed on 12-19-94 ☒ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), 0 days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☐ Notice of References Cited by Examiner, PTO-892.
2. ☐ Notice of Draftsman's Patent Drawing Review, PTO-948.
3. ☐ Notice of Art Cited by Applicant, PTO-1449.
4. ☐ Notice of Informal Patent Application, PTO-152.
5. ☐ Information on How to Effect Drawing Changes, PTO-1474..
6. ☐ _____.

Part II SUMMARY OF ACTION

1. ☒ Claims 1-32 are pending in the application.

   Of the above, claims _____ are withdrawn from consideration.

2. ☒ Claims 23-26 have been cancelled.

3. ☐ Claims _____ are allowed.

4. ☒ Claims 1-22 & 27-32 are rejected.

5. ☐ Claims _____ are objected to.

6. ☐ Claims _____ are subject to restriction or election requirement.

7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.

8. ☐ Formal drawings are required in response to this Office action.

9. ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).

10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____. has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).

11. ☐ The proposed drawing correction, filed _____, has been ☐ approved; ☐ disapproved (see explanation).

12. ☐ Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____; filed on _____.

13. ☐ Since this application apppears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.

14. ☐ Other

EXAMINER'S ACTION

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

2. (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-4, 7, 8, 10, 12-15, 18, 19, 21, 27-28 and 31-32 are rejected under 35 U.S.C. § 102(b) as being anticipated by Davis (4,593,470).

Davis teaches a device (fig. 3) for use in conjunction with a computer display apparatus (col. 1, lines 11-21) and a fixed surface 52. Davis teaches means supportable on a fixed surface (fig. 3) for supporting a stylus 84 and 86 while allowing at least a plurality of degrees of freedom in the motion of the stylus (col. 4, lines 8-12). Davis also teaches that the stylus to determine the position of the pencil shaped or stylus shaped member's tip 38 (col. 4, lines 18-39). Davis teaches (col. 4, line 48, through col. 5, line 17) that the supporting means is a mechanical linkage of at least three individual components 60, 80, 70, and 80 and at least three joints 62, 72, and 76. Davis teaches (col. 4, lines 18-39) that the stylus locative signal means is in communication with the stylus.

The device of Davis also reads on the broad limitations added in claims 1 and 12: users are provided with ability to manipulate the orientation and location of the stylus in three -

dimensional space; the stylus locative signal providing information about the orientation and location of the stylus, e.g., "the potentiometers generate signals which collectively determine the coordinates of the location of the tip element of the stylus" (see abstract), clearly these space coordinates would include orientation and location information of the tip of the stylus; these locative signals are interactive signals which on command by a user since these signals vary when user position the stylus differently.

As to newly added claims 27-28 and 31-32, the device of Davis meets the limitations; see col. 3 line 59-col. 4 line 22.

4. The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
>
> Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

5. Claims 29-30 are rejected under 35 U.S.C. § 103 as being unpatentable over Davis (4,593,470).

As to claims 29-30, it would have been obvious that the device of Davis could have been modified to have six degrees of freedom (instead of three degrees of freedom) so that more locative information signals could have been provided to users if it is necessary.

6. Claims 5, 6, 16, 17 are rejected under 35 U.S.C. § 103 as being unpatentable over Davis in view of IBM Technical Disclosure Bulletin, "Foot-Operated Mouse", Vol. 28, No. 11, April 1986, Pg. 4763.

Davis teaches a device and method for use in conjunction with a computer display apparatus and a fixed surface. Davis does not teach a remote unit that has an on/off switch and generates a command siganl when in its on state.

IBM teaches a foot-operated mouse which has a switch that has either of two states. "One embodiment employs a foot pedal with stable position corresponding to 'no pointing' and four unstable positions corresponding to the four different cursor motion positions: up, down, right, and left" (fourth paragraph). "This arrangement can be extended by suing a second foot pedal to provide programmable functions -- 'Select', for example" (sixth paragraph).

As to claims 5 and 16, it would have been obvious to have used a remote unit that has an on/off switch and generates a command in its on state, as taught by IBM, in the device of

Davis, to permit an operator, in general, greater freedom in the use of his or her hands and, specifically, "to keep physical keyboard reference and resume typing after using the foot-operated mouse to point" (third paragraph).

As to claims 6, 17, and 24, IBM teaches a foot pedal as a form of foot-operated mouse which, in turn, is a remote control unit.

7. Claims 9 and 20 are rejected under 35 U.S.C. § 103 as being unpatentable over Davis in view of Duimel (4,879,556).

Davis teaches a device and method for use in conjunction with a computer display apparatus and a fixed surface. No mechanical joint is completely frictionless, so actually there is some inherent resistance to motion in the mechanical linkage system of Davis. However, Davis does not specifically teach that resistance is provided to the motion of the stylus.

Duimel teaches the controlling of the motion of an input device through the use of springs (col. 4, lines 25-45).

As to claims 9 and 20, it would have been obvious to have used springs for controlling motion of an input device, as taught by Duimel, in the device of Davis, to allow a greater number of degrees of freedom of movement (col. 1, lines 45-60) and greater linearity in response so as to lead to higher precision (col. 1, lines 35-44).

8. Claims 11 and 22 are rejected under 35 U.S.C. § 103 as being

unpatentable over Davis in view of Fisher et al; "Virtual Environment Display System", October 23-24, 1986, all pages.

Davis teaches a device and method for use in conjunction with a computer display apparatus and a fixed surface. However Davis does not teach feedback means.

Fisher teaches (fig. 11 and paragraph immediately below it) that feedback means for generating force in response to force signals is well known. Force feedback means allow the operator to "pick up and manipulate virtual objects that appear in the surrounding virtual environment" (fig. 9 and text above fig. 9).

It would have been obvious to have used the force feedback means, taught by Fisher, in the device of Davis, to allow a user to "virtually explore a 360-degree synthesized or remotely sensed environment and...viscerally interact with its components" (abstract).

9. Applicant's arguments filed 12/19/1994 have been fully considered but they are not deemed to be persuasive.

Applicant argues that the newly added limitations to independent claims 1 and 12 would make these two claims patentably distinct from prior art of record. The Examiner disagrees with that. The device of Davis clearly reads on these broadly added limitations, e.g., users can manipulate the orientation and location of the stylus in three-dimensional space; users can interact with the stylus in a way that hte

locative signals vary when users position the stylus in different location; the coordinates of the location of the tip of the stylus clearly includes orientation and position information.

Although Davis does not teach that the stylus is provided with six degrees of freedom, however, it would have been obvious to have modified the device of Davis so that different number degrees of freedom could have been provided to accommodate user's need, such as more locative information in different directions could have been provided.

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

11. Any inquiry concerning this communication should be directed to Vivian Chang at telephone number (703) 308-6739.

V. Chang:tlr V.C.
March 8, 1995

RICHARD HJERPE
PRIMARY EXAMINER
GROUP 2600